

TECHNICAL REVIEW DOCUMENT
for
MODIFICATION TO OPERATING PERMIT 95OPDE049

Public Service Co – Denver Steam Plant
Denver County
Source ID 0310041

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December 2004

I. Purpose:

This document establishes the decisions made regarding the requested modification to the Operating Permit for Public Service Company's Denver Steam Plant. This document provides information describing the type of modification and the changes made to the permit as requested by the source and the changes made due to the Division's analysis.

This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the information provided in the request for modification submitted to the Division on December 16, 2004, e-mail correspondence and telephone conversations with the source.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Permit Modification Request/Modification Type

The Operating Permit for the Denver Steam Plant was renewed on January 1, 2002. Public Service Company (PSCo) submitted a request to modify the permit on December 15, 2004. The purpose of the modification is to switch the back-up fuel from No. 6 to No. 2 fuel oil.

Colorado Regulation No. 3, Part C, Section X.A identifies those modifications that can be processed under the minor permit modification procedures. Specifically, minor permit modifications "are not otherwise required by the Division to be processed as a significant modification" (Colorado Regulation No. 3, Part C, Section X.A.6). The Division requires that "any change that causes a significant increase in emissions" be processed as a significant modification (Colorado Regulation No. 3, Part C, Section I.B.36.h.(i)). According to Appendix D of Regulation No. 3 (Section I.F, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that a

significant increase in emissions is the potential to emit above the PSD significance levels. The requested modification results in no increase in potential emissions for all pollutants except for CO for the boilers. The potential CO emissions are higher because the No. 2 fuel oil has a lower heating value, so the calculated fuel consumption rate (based on the design rate is mmBtu/hr) is higher. Note that CO emissions are below the PSD significance level. There is no change in the potential emissions for PM, PM₁₀ and SO₂ as these limitations are based on Reg 1 limits and design rate. The table below shows the change in potential emissions based on the fuel switch.

	Potential to Emit (tons/yr)					
	PM ¹	PM ₁₀ ²	SO ₂ ³	NO _x	CO	VOC
After Modification – 100% No. 2 Fuel Oil ⁴	241.7	120.8	2,976.2	340.1	70.9	2.8
Prior to Modification – 100% No. 6 Fuel Oil ⁴	241.7	207.9	2,976.2	621.7	66.2	3.7
Change in Emissions	0	-87.1	0	-281.6	4.7	-0.9
100% Natural Gas ⁵	241.7	241.7	1.2	544.7	163.4	10.7

¹PTE, when burning any fuel, is based the Reg 1 PM limit (0.124 lbs/mmBtu for Boiler No.1 and 0.120 lbs/mmBtu for Boiler No. 2) x design heat rate x 8760 hrs/yr.

²PM₁₀ = 100% of PM for natural gas, 86% of PM for No. 6 fuel oil (per AP-42, Table 1.3-5) and 50% of PM for No. 2 fuel oil (per AP-42, Table 1.3-6).

³PTE, when burning fuel oil, is based on 1.5 lbs/mmBtu x design heat rate x 8760 hrs/yr.

⁴PTE for NO_x, CO and VOC is based on AP-42 emission factors (Section 1.3 (9/98), Tables 1.3-1 and 1.3-3) converted to lb/mmBtu based on a heat content of 140,000 Btu/gal for No. 2 fuel oil and 150,000 Btu/gal for No. 6 fuel oil, design rate (mmBtu/hr) and 8760 hrs/yr of operation.

⁵PTE for SO₂, NO_x, CO and VOC is based on AP-42 emission factors (Section 1.4 (3/98), Tables 1.4-1 and 1.4-2) converted by lb/mmBtu based on a heat content of 1020 per footnote a, design rate (mmBtu/hr) and 8760 hrs/yr of operation.

Since the change in potential emissions is below the PSD significance levels, the modification may be processed as a minor modification.

In addition, Colorado Regulation No. 3, Part A, Section I.B.36.(h)(ii) specifies that “any change that is considered a modification under Title I of the act” must be processed as a significant modification. According to Appendix D of Regulation No. 3 (Section I.F, revisions adopted July 15, 1993, Subsection I.G for modifications) the Division considers that “a Title I modification” is a modification that triggers NSPS, MACT or PSD requirements. The Division considers that this modification is not a Title I modification as discussed below:

The switch from No. 2 fuel oil to No. 6 fuel is not considered a modification for purposes of NSPS requirements since the switch to No. 2 fuel oil will not result in an increase in the emission rate for any of the pollutants regulated by the NSPS (NO_x, SO₂ and PM). In addition, the boilers are capable of accommodating No. 2 fuel oil. Secondly, since the facility is not a major source for hazardous air pollutant (HAP) emissions, the MACT requirements do not apply and the fuel switch does affect the MACT status of this facility. Finally, under the PSD rules, a physical change or change in the method of operation does not include use of an alternative fuel that the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under

any federally enforceable permit. As indicated previously the boilers are capable of accommodating No. 2 fuel oil. In addition, one of the boilers was constructed prior to February 1, 1972 and was not subject to new source review permitting requirements and the other was issued a construction permit prior to January 6, 1975 (note that this permit did not specify fuel). Although the Title V operating permit list the fuels utilized by the boiler, these are not restrictions established under the new source review permitting program but are included in order to identify all applicable requirements as required by the Title V permit program. Therefore, since this modification is not a Title I modification it can be processed as a minor modification.

III. Modeling

Since this modification results in no increase in potential emissions above the modeling threshold in the Division's modeling guidance, no modeling analysis is required.

IV. Discussion of Modifications Made

Source Requested Modifications

The Division addressed the source's requested modifications as follows:

Fuel Switch

The Division revised the description in the permit to indicate that No. 2 fuel oil is used as an alternate fuel and the emission factors were revised to the appropriate factors for No. 2 fuel oil. Note that the source indicated an emission factor of 0.216 lb/mgal for VOC and 162.7S for SO₂ in their draft permit. The appropriate emission factors for VOC in AP-42 is 0.2 lb/mgal (Table 1.3-3, dated 9/98, NMTOC for industrial boilers burning distillate fuel) and the appropriate AP-42 emission factor for SO₂ is 146.7S lb/mgal (142S (SO₂) + 5.7S (SO₃), Table 1.3-1, dated 9/98 for No. 2 oil fired boilers > 100 mmBtu/hr, the correct SO₂ value is noted in an errata issued by EPA).

In addition, minor changes were made to the language regarding fuel sampling and fuel characteristics that would be used to calculate emissions (Condition 2.3).

Finally the source indicated that a new 20,000 gal underground storage tank would be installed for on-site storage of No. 2 fuel oil. This tank has been included in Appendix A as an insignificant activity.

Other Modifications

In addition to the requested modifications made by the source, the Division used this opportunity to include changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this modification.

The Division has made the following revisions, based on recent internal permit

processing decisions and EPA comments on other permits, to the Denver Steam Plant Operating Permit with the source's requested modifications. These changes are as follows:

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- Removed the dates from the citation (above "issued to" and "plant site location").
- Added language specifying that the semi-annual reports and compliance certifications are due in the Division's office and that postmarks cannot be used for purposes of determining the timely receipt of such reports/certifications.
- Changed the Responsible Official

General

- Revised Reg 3 citations throughout the permit, as necessary, based on the recent revisions to Reg 3.

Section I – General Activities and Summary

- Revised the language in Condition 1.1 to address the attainment status of the area in which the facility is located.
- Conditions 13 and 17 in Condition 1.4 were renumbered to 14 and 18 and Condition 21 in Condition 1.5 was renumbered to 22. The renumbering changes were necessary due to the addition of the Common Provisions requirements in the General Conditions of the permit.
- In Condition 1.4, General Condition 3.g (Common Provisions, Affirmative Defense) was added as a State-only requirement.
- Revised Section 3 (PSD) and reversed the order of Conditions 3.1 and 3.2. In addition, revised the language in Condition 3.2 to more appropriately address PSD requirements. Specifically, references to major non-attainment area NSR have been removed.
- Added a "new" Section 7 for compliance assurance monitoring (CAM), note that no emission units are subject to CAM.

Sections II.1 and 2 – Opacity Requirements

- Removed the "Note" from Conditions 1.4 and 2.8.

Section II.4 – Safety Kleen Cold Cleaner Solvent Vats

- Revised Condition 4.1. Revisions were made to the "catch-all" provisions in Regulation No. 3 and those revisions became effective on December 30, 2002. With these revisions, an emission unit that is subject to specific Regulation No. 7 requirements can take the APEN and construction permit exemptions. Note that

an emission unit that is subject to specific Regulation No. 7 requirements cannot be considered an insignificant activity. The specific APEN exemption for small remote reservoir cold solvent cleaner vats was removed from Regulation No. 3. Therefore, since the language in this condition references the small remote reservoir exemption the language was revised. The language is consistent with the language in the Title V operating permit for Valmont Station.

Section III – Permit Shield

- Based on comments made by EPA on another permit, the following statement was added after the introductory sentence in Section 1 “In addition, this shield does not protect the source from any violations that occur as a result of any modification or reconstruction on which construction commenced prior to permit issuance”.
- Corrected the citation. The reference to Part A, Section I.B.43 was changed to Part C, Section I.A.4 (the Part A citation in the current permit was incorrect but the change reflects recent Reg 3 revisions) and the reference to Part C, Section XIII was changed to Part C, Section XIII.B.
- Corrected the general condition citation in Section 3 (change “21.b and c” to “22.b and c”).

Section V – General Conditions

- Added language from the Common Provisions (new condition 3). With this change the reference to “21.d” in Condition 20 (prompt deviation reporting) will be changed to “22.d”, since the general conditions are renumbered with the addition of the Common Provisions.
- Removed the upset provisions from Condition 4 (emergency provisions) since the upset provisions are included in the common provisions.
- The citation in General Condition 16 (open burning) was revised. The open burning requirements are no longer in Reg 1 but are in new Reg 9. In addition, changed the reference in the text from “Reg 1” to “Reg 9”.
- Added the requirements in Colorado Regulation No. 7, Section V.B (disposal of volatile organic compounds) to General Condition 28.